

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed November 27, 2006. Claims 1-22 were pending in the present application. This Amendment amends claims 1 and 10, and adds new claims 23 and 24, leaving pending in the application claims 1-24. Reconsideration of the rejected claims and consideration of the newly presented claims are respectfully requested.

I. Rejection under 35 U.S.C. §103

Claims 1-16, 18-19, and 21-22 are rejected under 35 U.S.C. §103(a) as being obvious over *Bridge* (US 6,530,035) in view of *Iwami* (US 2002/0112030). Applicants respectfully submit that these references do not teach or suggest each element of these claims.

For example, Applicants' claim 1 as amended recites method of controlling a storage system having primary storage volumes and replication storage volumes which replication storage volumes improve reliability of the storage system, the method comprising:

determining a boundary of a failure of the primary storage volumes and the replication storage volumes, the boundary being determined using error correction group and controller group information of the primary storage volumes and replication storage volumes to divide the storage volumes into failure groups of logical volumes; and

using the determined failure boundary and a type of content to be stored to assign replication storage volumes, a first type of content to be stored having replication storage volumes assigned across the failure boundary, and a second type of content to be stored having replication storage volume within the failure boundary

(*emphasis added*). Such limitations are neither taught nor suggested by these references.

Bridge teaches managing a storage system through use of failure groups, wherein each disk drive is paired with one or more mirrored disk drives from other failure groups, where mirror partners are formed "so that every disk drive has mirror partners in as many different failure groups as possible" (col. 2, lines 43-59; col. 4, lines 13-43). *Bridge* thus teaches storing all copied data in different failure groups, but does not teach or suggest assigning storage volumes within and across failure boundaries based upon the type of data to be stored, such as full backup data being stored across failure boundaries and differential backup data being stored within a failure boundary as recited in claim 23. Further, as recognized in the Office Action on page 4, *Bridge* does not teach or suggest "the boundary being determined using error correction

group and controller group information of the primary storage volumes and replication storage volumes to divide the storage volumes into failure groups of logical volumes" as recited in Applicants' claim 1. *Bridge* thus cannot render obvious Applicants' claim 1 as amended.

Iwami does not make up for these deficiencies in *Bridge* with respect to Applicants' claim 1. *Iwami* teaches guaranteeing data access speed having guaranteed qualities of service, where the communication speed of data paths is assigned in order to accommodate the speed of storage system resources, such as storage disks connected by these data paths (paragraph [0006]). In one example, a logical disk and an associated communication path can have an assigned quality of service where the logical disk is created within an error checking and correcting group (paragraphs [0032], [0036]). *Iwami* does not, however, teach or suggest assigning storage volumes within and across failure boundaries based upon the type of data to be stored as recited in Applicants' claim 1, such as full backup data being stored across failure boundaries and differential backup data being stored within a failure boundary. As such, *Iwami* cannot render obvious Applicants' claim 1, or the claims that depend therefrom, either alone or in combination with *Bridge*. Applicants' claim 10 recites limitations that similarly are not taught or suggested by these references for reasons including those discussed above, such that claim 10 and the claims that depend therefrom also cannot be rendered obvious by *Iwami* and *Bridge*, individually or in combination.

Claims 17 and 20 are rejected under 35 U.S.C. §103(a) as being obvious over *Bridge* and *Iwami* in view of *Tam* (US 6,411,969). Claims 17 and 20 depend from claims 1 and 10, respectively, which are not rendered obvious by *Bridge* and *Iwami* as discussed above. *Tam* does not make up for the deficiencies in these references with respect to these claims. *Tam* teaches incremental and accumulated dump functionality to enhance database back-up (col. 6, lines 59-67), and is cited as teaching that it is a standard practice to automatically back-up data on a daily or periodic basis and store the data on tape or disk (OA p. 14). *Tam* does not, however, teach or suggest assigning storage volumes within and across failure boundaries based upon the type of data to be stored as recited in claims 1 and 10, such as full backup data being stored across failure boundaries and differential backup data being stored within a failure

boundary. As such, *Tam* cannot render obvious Applicants' claims 1 and 10, or dependent claims 17 and 20, alone or in any combination with *Bridge* and *Iwami*.

Applicants therefore respectfully request that the rejection with respect to claims 1-22 be withdrawn.

II. Amendment to the Claims

Unless otherwise specified or addressed in the remarks section, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the specification and do not add new matter.

III. Newly Presented Claims

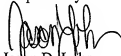
Claims 23 and 24 have been added to cover different aspects of the present invention. These claims are supported by the specification and do not add new matter. Applicants therefore respectfully request consideration of newly presented claims 23 and 24.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 925-472-5000.

Respectfully submitted,



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